Request for Information (RFI) on Massachusetts Solar Deployment Effort

Project Description and Objectives:

As part of Governor Patrick's Massachusetts Recovery Plan to secure the state's economic future, the Commonwealth of Massachusetts wishes to invest in solar photovoltaic energy generation (PV) on public facilities throughout the state, leveraging funds made available under the American Reconstruction and Recovery Act (ARRA) to the greatest extent possible. Through the Energy Task Force of the Governor's Mobilization Effort conducted in preparation for ARRA, the Commonwealth identified 50 projects, some with multiple sites, potentially suitable for over 13 MWs of roof and ground-mounted PV installation. The Energy Task Force project list appears in Appendix B and includes projects such as 2 MW at the Boston Convention and Exhibition Center (BCEC) and 1.5 MW at the Pittsfield Wastewater Treatment Plant. In addition, a Municipal Task Force identified a number of additional potentially suitable projects. Initial estimates are that 15-30 MW could be built across the state, from installations as small as 10 kW to as large as 2 MW. Between $40 and $100 million of ARRA funds could be available for this effort from several programs, the State Energy Program (SEP), the Energy Efficiency and Conservation Block Grant Program (EECBG), and the State Revolving Fund for Clean Water and Drinking Water (SRF).

The key principles that guide this effort are to support PV in ways that:

- rapidly deploy large systems to maximize PV capacity, while providing maximum transparency and accountability
- leverage federal funds to the fullest extent possible;
- obtain extremely competitive pricing via volume procurements and purchasing;
- reduce the operating costs of state and municipal facilities;
- foster expansion of the Massachusetts PV industry and create local jobs.

Planned Process:

The Commonwealth is taking a 3 step process to this comprehensive PV deployment effort:

1. It is issuing this Request for Information (RFI) to seek input from solar providers experienced with high installation capacity on a comprehensive program to deploy PV at as many of these locations as possible within the next 9-12 months. The RFI asks respondents a number of questions (in italics below) to provide input on the best approach to this program. Separately, a procedural Intent To Procure (ITP) is also being issued.
2. The Commonwealth will incorporate this information and then issue a Request For Qualifications (RFQs) in order to select one or more vendors. Proposed criteria would include qualifications, current capacity to take on work, firm bids on 3-5 specific projects, and not-to-exceed costs on other categories of projects.
3. Actual projects would be contracted for by each public entity with the qualified vendor(s).

Additional Information:

Federal American Reconstruction and Recovery Act (ARRA a.k.a. 'stimulus') funds will be available to pay for a portion of the selected projects. The existing Commonwealth Solar Rebate Program funds will not be made available for co-funding these projects. Solar Renewable Energy Certificates (S-RECs), should they become available in Massachusetts, are not available for co-funding these projects.

Most projects will provide power to meet on-site demand, however, some systems may supply power back to the grid and receive net-metering credits. For power purchase agreements, the acceptable cost of power is likely to be the current cost of power at each facility, i.e. ranging from $0.10/kWh to $0.20/kWh, and acceptable escalation rates to be less than inflation, e.g. 2.5%. Only roofs capable of carrying structural loads and in good condition will be part of a final solicitation.

The winning vendor(s) would be required to adhere to the provisions of the ARRA[1] and any provisions in potential Massachusetts legislation,[2] including:

- use of American iron, steel, and manufactured goods unless 1) not in the public interest, 2) not available or 3) would increase costs by more than 25%
- prevailing wages for all labor
- for projects exceeding $1 million, at least 20 per cent of the total hours of employees receiving an hourly wage who are directly employed on the site of the project and subject to the prevailing wage shall be performed by apprentices in bona fide apprentice training programs unless compliance is not feasible

Form of response:

Qualified respondents to this RFI should include in their responses any information or comments requested in italics below.

Qualifications

Respondents should demonstrate the following:

- *Relevant qualifications and experience in designing and installing large (>100kW) photovoltaic systems as well as experience managing large PV installation programs at multiple sites.*
- *Previous success with high installed capacity of PV (kW) per dollar of total funding*
- *Project coordination and management particularly with public procurement*
- *Financial viability of company*

Financing models

In the past, public entities have used a number of methods for financing including cash purchase, financing through general obligation bonds or Clean Renewable Energy Bond (CREB)/Energy Conservation Bond (ECB) allocations, and third-party ownership with an option to purchase

[1] http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h1enr.pdf, pg 189
[2] http://www.mass.gov/Agov3/docs/econ_recovery/act_mobilizing_econ_rec_mass.doc

after year six. [3] Each of these approaches has potential advantages and disadvantages, e.g. limited availability of tax-equity investors for third-party ownership, high transaction costs for CREBs unless bundled appropriately as in Massachusetts, etc.

Taking into account the new options in the ARRA, e.g. a cash grant in lieu of the ITC and the expansion of CREB and ECB allocations, what financing model would provide the best value for the Commonwealth?

Solicitation packages

According to a confidential market study cited by Southern California Edison at a public presentation, it has explored a "winner takes all" approach to obtain costs that are "half the cost of typical small commercial installations."[4]

How should projects be packaged to provide the best value for the Commonwealth and/or expedited deployment?

- *Total project capacity as single award?*
- *Bidding blocks, e.g. with each respondent proposing a minimum of 1MW?*
- *Allow bidders to "cherry pick" the list?*
- *Quote each facility/site separately?*
- *Group into blocks by system types and sizes, by building types & sizes, by financing mechanism, by geography, etc?*
- *Include a minimum system size, e.g. 100 kW or 250kW?*

Solicitation Process

One of the options the Commonwealth is considering to expedite the installation of the maximum capacity and obtain the best value is a statewide contract or Master Service Agreement for 15-30 MW of PV. We envision issuing an RFQ and selecting up to 3 companies to provide these services to public entities across the state, including agencies, public higher education institutions, state public housing, quasi-public authorities, and municipalities. Each governmental entity would then negotiate and execute an agreement with one of the selected three companies. The public entity would have the option of choosing a financing mechanism appropriate for them. Possible conditions the Commonwealth is considering include: open book pricing with pre-negotiated markup ceilings for winning bidders and the use of Massachusetts goods and services.

Companies would be evaluated on their responses including the following criteria, each of which is expanded upon in the appendix:

- Qualifications and experience with similar project size and scope
- Current capacity to take on project volume
- Actual bids on 3-5 specific projects
- Not to exceed installed cost ($/W) for various system categories

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[3] NREL, *Solar Photovoltaic Financing: Deployment on Public Property by State and Local Governments.* http://www.nrel.gov/docs/fy08osti/43115.pdf

[4] SEPA, *Utility Procurement Study: Solar Electricity in the Utility Market*. http://www.resource-solutions.org/pub_pdfs/SEPAProcurementReportFinal.pdf

- Level of funding needed to reduce the cost of energy to specified facilities.

Please provide comment on benefits and concerns about any of the elements of such an approach.

Solicitation Schedule

The stimulus requires an expedited time frame possible by all parties.

RFI Issued:	March 26, 2009
RFQ Issued:	April 13, 2009
Bidders Conference:	April 20, 2009
Responses due:	May 8, 2009
Contract(s) awarded:	May 15, 2009
Projects under way:	July 1, 2009

Given that the Commonwealth is committed to not delaying initiation of any project, is this schedule feasible? What changes would you propose?

Site assessment

How should sites be pre-qualified for bid without the time and expense of detailed engineering at each site? What site assessment tools or qualifiers should be utilized? What is the minimum amount of specific site and/or building information that would be required to ensure that projects could be initiated and installed in a timely fashion?

Stimulus Fund Conditions

Please estimate the impact of and discuss concerns with any of Federal or state provisions such buying American steel, use of prevailing wages, and

Alternatives

Please provide any comments on other creative procurement options, technical considerations, etc that we should take into account.

Contact Information:
Please submit your responses electronically by the date indicated to vivek.mohta@state.ma.us and natalie.howlett@state.ma.us. If you have any questions about this RFI, please contact:

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617-626-7343
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Boston MA 02114

Appendix: Proposed Evaluation Criteria

Qualifications:

- Relevant qualifications and experience in designing and installing large (>100kW) photovoltaic systems and/or managing large PV installation programs at multiple sites.
    - List of projects
    - List of staff resources
    - Partners and subcontractors
    - PV equipment supply chain relationships
- Previous success with high installed capacity of PV (kW) per dollar of total funding
- Project coordination and management particularly with public procurement
- Financial viability of their company

Current capacity:
Provide a list of company's backlog of PV installation work at time of application. Explain the company's project throughput rate and capabilities to deliver.

Firm bids:
Firm bids on 3-5 specific projects at an advanced stage of readiness from the attached list submitted by the Governor's Clean Energy Task Force, including installed cost and cost of energy over the life of varying contract terms.

Not-to-exceed installed cost:
Not-to-exceed installed cost per watt based on assumptions provided for:

- An overall "package" that includes the entire variety of sites, sizes, and mounting
- Typical flat roof mounted PV array
    - Mounting density in watts per sq. ft.
    - Mounting design including the tilt angle
    - Average weight per sq. ft. of roof-mounted systems
    - Size or other factors that impact costs
- Specialty mounted roof mounting experience with historic buildings and/or architecturally unique buildings.
    - Design considerations that impact costs
- Ground-mounted
    - Mounting design considerations
        - Site preparation needs/costs
        - Array tilt angle
        - Tracking or fixed arrays
    - Size or other factors that impact costs

Appendix B: Governor's Clean Energy Task Force PV Project List

Task Force	Project Title	Project Description	Project Cost	City/Town	Capacity (kW)
Energy	Convention Center - BCEC - Solar photovoltaic array on roof	Install solar array	$14,418,750	Boston	2000
Energy	DEP - Pittsfield Wastewater Treatment Plant	Renewable energy and efficiency upgrades to the plant. Install a 1,575 kW solar photovoltaic system for on-site renewable power generation.	$13,387,500	Pittsfield	1575
Energy	DEP - Barnstable Wastewater Treatment Plant	Renewable energy and efficiency upgrades to the plant. Install a 1,000 kW solar photovoltaic system onsite.	$8,500,000	Barnstable	1000
Energy	DCAM - Berkshire Community College - Solar PV On Identified Sites (9 buildings)	Solar PV On Identified Sites - Berkshire Community College (9 buildings)	$7,225,000	Pittsfield	850
Energy	MWRA - Deer Island Treatment Plant - Photovoltaic	800 kW	$6,800,000	Boston	800
Energy	Berkshire Community College - Solar Panels	Solar panels will be installed on building tops and avaiable open space. They will provide 800,000 kilowatt hours of electrical supplement.	$5,500,000	Pittsfield	761
Energy	MWRA - Photovoltaic - Various facilities (total contract - 758 kW)	Southborough Facilities - 140 kW, Carroll Water Treatment Plant - 600 kW, Framingham Pump Station - 18 kW	$6,443,000	Southborough, Marlborough, Framingham	758
Energy	DEP - Falmouth Wastewater Treatment Plan	Wind turbine and solar upgrade projects. Install 510 kW solar photovoltaic system.	$4,335,000	Falmouth	510
Energy	Massport - Logan Airport - Terminal B Parking Garage & Roadway Rehab	Necessary repairs to structrual elements of the Garage and related roadways. Also included is replacement of lighting existing high pressure sodium fixtures with more energy efficient fixtures and the installation of solar energy system.	$4,500,000	Boston	438
Energy	Massport - Logan Airport - Terminal B & E HVAC and Lighting Upgrade	Replacement of outdated HVAC units and lighting in the main terminal concourses with more energy efficient systems plus the addition of solar energy generation.	$3,234,399	Boston	381
Energy	DHCD - Renewables installation	30+ solar-ready roofs - ID'd under MTC grant - 25KW per site	$7,500,000	Multiple	375
Energy	DEP - Quittacus Water Treatment Plant	Renewable energy and efficiency upgrades to the plant. Install 350 kW solar photovoltaic system onsite.	$2,975,000	New Bedford	350
Energy	DEP - Greater Lawrence Sanitary District	Renewable energy and efficiency upgrades to the plant. Install 310 kW solar photovoltaic system.	$2,480,000	North Andover	310
Energy	DEP - Upper Blackstone Water Pollution Control District - Energy efficiency and solar	Install 275 kW solar photovoltaic system.	$2,337,500	Worcester	275
Energy	MWRA - Photovoltaic - Various facilities (total contract - 260 kW)	Clinton Treatment Plant - 100 kW, Cosgrove Intake and Power Station - 140 kW, Oakdale Power Station - 20 kW	$2,210,000	Clinton, Boylston, West Boylston	260
Energy	DCAM - Quinsigamond Community College - Solar PV On Identified Sites	Solar PV On Identified Sites - Quinsigamond Community College	$1,912,500	Worcester	225

Task Force	Project Title	Project Description	Project Cost	City/Town	Capacity (kW)
Energy	Salem State College - Renewable Energy Initiative	Salem State College plans to install photo-voltaic cells on several buildings on its Central Campus. A grant already received plus a college contribution provide initial funding for this initiative but are inadequate to cover the cost of the original scope. Approximately $400,000 is required to enable this project to proceed. In addition, the college would like to expand the initiative to a second building at a cost estimated at $900,000, for total funding for this proposal of $1.3 million.	$1,445,000	Salem	170
Energy	DCAM - Salem State Community College - Solar PV On Identified Sites - Salem State Community College	Solar PV On Identified Sites - Salem State Community College - (3 buildings)	$1,445,000	Salem	170
Energy	DEP - Worcester Water Filtration Plant	Renewable energy and efficiency upgrades to the plant. Install 150 kW solar photovoltaic system onsite.	$1,275,000	Worcester	150
Energy	DEP - Charles River Pollution Control District	Energy efficiency and solar. Install 120kW solar photovoltaic system.	$1,020,000	Medway	120
Energy	MTA - Auburn Solar Rooftop Installation	Installation of 100 kW solar array atop southern vehicle maintenance garage bays.	$1,000,000	Auburn	100
Energy	Framingham State College - Solar Photovoltaics and Roof Project	Necessary repairs and installation of a solar photovoltaic system in combination with the roof replacement of the College Center roof. The resultant clean power generated would be consumed on site to power cooling and lighting systems in the building. CBT Architects and Colantonio Construction under contract for project with 9 month completion target.	$800,000	Framingham	100
Energy	Westfield State College - Solar Photovoltaic Installlation	New Residence Hall- Solar Energy	$1,200,000	Westfield	100
Energy	MTA - Southern Maintenance Garage Bays - Solar Rooftop Installation	Installation of 100 kW solar array atop southern vehicle maintenance garage bays.	$1,000,000	Weston	100
Energy	DEP - Lee Drinking Water Treatment Plant	Renewable energy and efficiency upgrades to the plant. Install 90 kW solar photovoltaic system onsite.	$765,000	Lee	90
Energy	DEP - Lowell Regional Wastewater Utility	Install 90 kW solar photovoltaic system.	$765,000	Lowell	90
Energy	Salem State College - Solar Photovoltaic Installlation	New Residence Hall- Solar Energy	$1,020,000	Salem	85
Energy	DCAM - UMASS Boston - Solar PV On Identified Sites - Umass Boston Clark Athletic Facility	Solar PV On Identified Sites - Umass Boston Clark Athletic Facility	$680,000	Boston	80
Energy	DCAM - Framingham State College - Solar PV On Identified Sites	Solar PV On Identified Sites - Framingham State College - Hemenway Hall	$680,000	Framingham	80
Energy	DCAM - Fitchburg State College - Solar PV On Identified Sites	Solar PV On Identified Sites - Fitchburg State College (2 buildings)	$510,000	Fitchburg	60
Energy	Bridgewater State College - Solar Photovoltaic Installlation	Pope Hall - Solar Energy	$684,000	Bridgewater	57
Energy	DEP - Solar upgrades	Install 50 kW solar photovoltaic system to operations building and (5) water pump stations.	$400,000	Easton	50

Task Force	Project Title	Project Description	Project Cost	City/Town	Capacity (kW)
Energy	Mass College of Art - Solar Photovoltaic Installlation	Flagg Townhouses - Solar Energy	$600,000	North Adams	50
Energy	Worcester State College - Solar Photovoltaic Installlation	Wasylean Hall - Solar Energy	$500,000	Worcester	50
Energy	Worcester State College - Wasylean Hall Photovoltaic Installation	WSC proposes to install a 50 kW photovoltaic solar panel system on the roof of Wasylean Hall (residence hall). The feasibility study, previously submitted to the Division of Energy Resources, for this project has already been completed with very favorable findings. The building has a 96% solar window and ample open roof area to accommodate a PV installation.	$400,000	Worcester	50
Energy	DCAM - DCR - Solar PV On Identified Sites - Chickatawbut Hill	Solar PV On Identified Sites - Chickatawbut Hill, DCR	$416,500	Milton	49
Energy	Massport - Logan Airport - Bus Maintenance Facility and CNG Station	Site development and structures for a Logan Bus Maintenance Facility including a combined administration and maintenance facility, a wash building, a CNG fuel operation, and employee parking. Install PV capacity of 50,000kWh/ yr	$500,000	Boston	48
Energy	DEP - Ashland - Howe Street Drinking Water Plant	Renewable energy and efficiency upgrades to the plant. Install 45 kW solar photovoltaic system on site.	$372,000	Ashland	45
Energy	Fitchburg State College - Solar Photovoltaic Installlation	Aubuchon Hall - Solar Energy	$480,000	Fitchburg	40
Energy	Framingham State College - Solar Photovoltaic Installlation	Larned Hall -Solar Energy	$480,000	Framingham	40
Energy	DEP - Solar upgrades	Install 40 kW solar photovoltaic system to operations building and (5) water pump stations.	$320,000	Townsend	40
Energy	DCAM - State House - Solar PV On Identified Sites	Solar PV On Identified Sites - State House	$360,000	Boston	30
Energy	DCAM - DCR - Solar PV On Identified Sites - Georges Island	Solar PV On Identified Sites - Georges Island, DCR	$170,000	Georges Island	20
Energy	DEP - MassDEP Wall Experiment Station	Renewable energy and efficiency upgrades for existing renovation of a nation historic engineerign landmark that is home to a state lab. Install 18 kW solar photovoltaic system.	$75,000	Lawrence	18
Energy	Mass College of Art - Solar Photovoltaic Installlation	Artist's Residence- Solar Energy	$300,000	Boston	16
Energy	DEP - Falmouth Water Treatment - Long Pond - Solar upgrade	Install 15 kW solar photovoltaic system.	$120,000	Falmouth	15
Energy	DCAM - Mass Highway - Solar PV On Identified Sites	Solar PV On Identified Sites - Mass Highway District 2 Storage East Building.	$127,500	Northampton	15
Energy	DCAM - DCR - Solar PV On Identified Sites - Waquoit Bay	Solar PV On Identified Sites - Waquoit Bay, DCR	$85,000	Waquoit	10
Energy	DCAM - DCR - Solar PV On Identified Sites - Blue Hills Trailside Museum	Solar PV On Identified Sites - Blue Hills Trailside Museum, DCR	$76,500	Milton	9
Energy	DFG - Shellfish Depuration Plant Repairs	Install solar PV panels on process area roof, and replace/repair detoriating door in process area.	$100,000	Boston	